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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Joun Ho Lee

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EXAMINER

KIELIN, ERIK J

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,533

Applicant(s)

LEE, JOUN HO

Examiner

Erik Kielin

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 4-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 February 2004 has been entered.

Specification

2. The disclosure is objected to because of the following informalities:
in paragraphs [0029] and [0037] replace "a-Sh:H" with -- a-Si:H -- for proper chemical nomenclature.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13-16 and 18 are is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation, "forming an insulating layer on the substrate including the scanning lines (G0-Gn)." It is unclear, as presently written whether the insulating layer is formed

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over the scanning lines or not. As presently written, all that is required is that an insulation layer be formed on the same substrate as that substrate on which the scanning lines are formed.

Accordingly, the metes and bounds of the claim are unclear.

5. The term "while" in claim 16 is a relative term which renders the claim indefinite. The term "16" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. While could mean simultaneously with the formation of the active layer of the TFT or could also mean while the LCD is formed.

The remaining claims are rejected for depending from the above rejected claims.

For the purposes of patentability, the claims will be interpreted as best understood.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 and 8-18 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,747,830 A (**Okita**).

Regarding claim 1, **Okita** discloses a liquid crystal display comprising:

a plurality of gate lines (G0-Gn) **21a, 21b, 21c**, formed along a first direction (Figs. 3, 11B);

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a plurality of data lines (D1-Dn) **22a, 22b, 22c, 22d**, formed along a second direction substantially perpendicular to the first direction and crossing the gate lines (Figs. 3, 11B);

a plurality of pixel electrodes **16** (Figs. 4, 5), **28** (Figs. 3, 11B) each formed in a pixel area defined by the gate lines and the data lines, the pixel electrodes indicating pictures under control of the corresponding gate lines (Figs. 3, 11B); and

a light transmission restricting layer **13, 14** formed beneath the pixel electrodes **16** (Figs. 4-5).

(See also Okita col. 6, lines 1-22; col. 9, lines 10-43.)

It is held, absent evidence to the contrary that the “hydrogen supply layer **13**” formed of amorphous silicon (a-Si:H) is a light transmission restricting layer by Applicant's admissions in the specification. (See instant specification at p. 7, first paragraph, for example. See MPEP 2112.)

Regarding claim 2, the liquid crystal display as claimed in claim 1, wherein the light transmission restricting layer **13** is a semiconductive layer (col. 6, lines 1-22).

Regarding claim 3, the liquid crystal display as claimed in claim 2, wherein the semiconductive layer **13** is an amorphous silicon layer (col. 6, lines 1-22).

Regarding claim 8, **Okita** discloses a liquid crystal display (LCD) device, comprising:

a substrate **51** (Fig. 5);

a plurality of scanning lines (G0-Gn) **21a, 21b, 21c**, extending along a first direction (Figs. 3, 11B);

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a plurality of data lines (D1 - Dn) **22a, 22b, 22c, 22d**, extending along a second direction substantially perpendicular to the first direction on the substrate and crossing the scanning lines (G0 - Gn) (Figs. 3, 11B);

a plurality of switching devices **23** on the substrate arranged in a plurality of rows, each switching device connected to one of the scanning lines (G0-Gn) for controlling a switching of the switching device and one of the data lines (D1-Dn) for applying data to the switching device, wherein switching devices in each row are connected to a same scanning line, and wherein the rows of switching devices are sequentially scanned by the scanning lines (G0 - Gn) (Figs. 3, 11B);

a plurality of pixel electrodes **16** (Figs. 4, 5), **28** (Fig. 11B) on the substrate **51** in a plurality of pixel areas defined by the scanning lines (G0-Gn) and the data lines (D1-Dn), the pixel electrodes each being connected to a corresponding one of the switching devices **23**; and

a light transmission restricting layer **13, 14** formed beneath the plurality of pixel electrodes, wherein the plurality of pixel electrodes **16** (Figs. 4, 5), **28** (Figs. 3, 11B) are controlled by a second scanning line (G1) **21b** among the scanning lines (G0-Gn). Note that **21b** controls at least a plurality of pixel electrodes connected thereto (Figs. 11A-11B; col. 1, lines 20-52).

Regarding claim 9, the LCD device of claim 8, wherein the light transmission restricting layer is a semiconductive layer (col. 6, lines 1-22).

Regarding claim 10, the LCD device of claim 9, wherein the switching devices include an active layer (col. 1, lines 20-22; col. 5, lines 15-20).

Regarding claim 11, the LCD device of claim 9, wherein the active semiconductive layer is an amorphous silicon layer (col. 1, lines 20-22; col. 5, lines 15-20).

Regarding claim 12, the LCD device of claim 8, further comprising an insulating material **3, 4, 10, 12, 52**, between the light transmission restricting layer **13, 14** and the substrate **51**.

Regarding 13, **Okita** discloses a method for manufacturing a liquid crystal display, the method comprising:

forming a plurality of scanning lines (G0-Gn) **21a, 21b, 21c**, along a first direction on a substrate **51** (Figs. 3, 5, 11B);

forming an insulating layer **10, 12** on the substrate **51** including the scanning lines (G0-Gn) **21a, 21b, 21c**;

forming a light transmission restricting layer **13, 14** on the insulating layer **10, 12**;

forming a plurality of data lines (D1-Dn) **22a, 22b, 22c, 22d** along a second direction substantially perpendicular to the first direction on the substrate **51** and crossing the scanning lines (G0 - Gn) (Figs. 3, 5, 11B); and

forming a plurality of pixel electrodes **28** on the substrate **51** in a plurality of pixel areas defined by the scanning lines (G0 - Gn) and the data lines (D1 - Dn), the pixel electrodes each being controlled by one of the scanning lines, wherein the light transmission restricting layer **13, 14** is formed beneath the plurality of pixel electrodes **28** (Figs. 3, 5, 11B).

Regarding claim 14, the method of claim 13, further comprising forming a second insulating layer **15** on the light transmission restricting layer **13, 14** before forming the pixel electrodes **28** (Figs. 3, 5, 11B).

Regarding claim 15, the method of claim 13, further comprising forming a plurality of switching devices **23** on the substrate **51** arranged in a plurality of rows, each switching device connected to one of the scanning lines (G0-Gn) and one of the data lines (D1-Dn) (Figs. 3, 5, 11B).

Regarding claim 16, the method of claim 13, wherein an active layer of the switching devices is formed while forming the light transmission restricting layer. "While" is taken to mean while the LCD is being manufactured.

Regarding claim 17, the liquid crystal display as claimed in claim 1, wherein the light transmission restricting layer **28** is formed beneath a plurality of pixel electrodes that are controlled by a second gate line (G1) among the gate lines (G0-Gn). Because the light transmission restricting layer is formed in each pixel region, it is necessarily formed beneath the pixel electrodes controlled by G1.

Regarding claim 18, the method of claim 13, wherein the light transmission restricting layer is formed beneath the plurality of pixel electrodes **28** that are controlled by a second scanning line (G1) among the scanning lines (G0-Gn). Because the light transmission restricting layer is formed in each pixel region, it is necessarily formed beneath the pixel electrodes controlled by G1.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,847,781 (**Ono et al.**) anticipates at least instant claim 1 showing a light transmission restricting layer **SKD** beneath pixel electrode **ITO1** (Fig. 2).

US 6,608,658 B1 (**Tsujimura et al.**) anticipates at least instant claim 1 showing a light transmission restricting layer **14, 18** beneath pixel electrode **23'** (Fig. 2E).

US 6,593,990 B1 (**Yamazaki**) anticipates at least instant claim 1 showing a light transmission restricting layer **124** beneath pixel electrode **127** (Fig. 1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik Kielin whose telephone number is 571-272-1693. The examiner can normally be reached on 9:00 - 19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erik Kielin
Primary Examiner
30 June 2004